

Memorandum

Date: September 21, 2017
To: William Lee
CC: [REDACTED]
From: Tim Rooper
Subject: Chemsol OU-3 Off-Site Remedial Investigation
OSW-7 and OSW-8 Second Sampling Event
Project No.: 160688

This Technical Memorandum presents results from a second sampling event at Chemsol off-site well locations OSW-7 and OSW-8, collected in August 2017 (See Figure 1). The first sampling event was collected in May 2017 with results reported in a Technical Memorandum dated June 14, 2017. A third sampling event is scheduled for November 2017 and will include testing from off-site well locations OSW-1, OSW-2, OSW-3, OSW-5, and OSW-6, after which a third Technical Memorandum will present recommendations for any next steps as needed to complete the Remedial Investigation.

Monitoring well installations OSW-7 and OSW-8 associated with the Chemsol OU-3 Phase III investigation were drilled and completed with FLUTE multi-port sampling ports ("Water FLUTEs") pursuant to the EPA-approved Chemsol OU-3 Work Plan, dated March 24, 2017.

The Water FLUTEs were installed at OSW-7 and OSW-8 during the period from April 24 through 27 2017. The depth of the sampling ports at each location include:

OSW-7		OSW-8	
Port No.	Depth (bgs)	Port No.	Depth (bgs)
		P1	65 – 75
P1	50 - 60	P2	160 – 170
P2	185 - 195	P3	255 – 265
P3	290 - 300	P4	350 - 360
P4	430 - 440	P5	445 - 455



Upper Gray Shale			
P5	460 - 470	P6	470 – 485
P6	510 - 520	P7	528-543
P7	530 -540		

Representatives of Cornerstone collected a second round of groundwater samples from locations OSW-7 and OSW-8 on August 7, 2017. Analysis of field parameters was conducted at completion of purging and the collected samples were sent to Test America Laboratory in Edison, NJ for analysis of Target Compound List (TCL) volatile organic compounds (VOCs). The objective of this second round of sampling is to assess groundwater quality at OSW-7 and OSW-8 as conditions equilibrate following disruption of the aquifer during drilling and well installation activities.

Field parameters recorded at the time of sampling are shown in attached Table 1 and the analytical results are summarized in Table 2. The field parameters show notably lower redox values as compared to measurements recorded in May 2017, with most ports reporting negative ORP values. As noted in the June memorandum, the higher values at OSW-8 suggest a greater degree of aquifer disturbance as compared to OSW-7, and the ORP values at OSW-8, Ports 1 and 2, may further decline to negative values consistent with the remaining ports at OSW-7 and OSW-8. The observed disturbance is consistent with results in prior well installations and it is expected that subsequent sampling events will demonstrate the return to static conditions with time.

The VOC results summarized in Table 2 are generally consistent with both the screening samples collected during the well drilling activities and with the first round of sampling in May 2017. Specifically, trichloroethene was detected above water quality criteria at OSW-8 Ports 3, 4, and 5, while carbon tetrachloride was detected above water quality criteria at OSW-8 Ports 3 and 4. These constituents were not detected (ND) in any of the sampling ports at OSW-7.

Also consistent with the May 2017 sampling results, the compound 1,4-dioxane (analyzed via method 8260 SIM) exceeds the Interim Specific Groundwater Quality Standard (ISGWQS) of 0.4 ug/L in all of the collected samples and it is the only constituent above groundwater quality standards at OSW-7. Notably, 1,4-dioxane is present at low concentrations in numerous industrial and commercial products and its presence cannot be specifically correlated to a given source.

In summary, the August 2017 sampling event represents the second round of samples collected from recently installed well locations OSW-7 and OSW-8. The first and second rounds of data may indicate that OSW-8 could be located near the leading edge of the Chemsol plume, while OSW-7 is located outside the western limits of the plume. The next sampling event is scheduled for November 2017. These data will be compared to the first two rounds of data as well as additional water quality data to be collected from OSW-1, OSW-2, OSW-3, OSW-5, and OSW-6. These data will be transmitted in a Technical Memorandum summarizing the sampling results and proposing next steps for remedy selection.



Map Source: Bing Maps



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Off Site Monitoring Well Locations Chemsol Superfund Site

FIGURE NO.

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Table 1
Summary of Field Parameters, OSW-7 and OSW-8
August 7, 2017

Sample Location	Sample Date	Dissolved Oxygen	pH	REDOX potential	Specific Conductivity	Temperature	Turbidity
OSW-7 P1	8/7/2017	2.11	8.2	-17	0.381	16.13	0
OSW-7 P2	8/7/2017	0.16	7.97	-43	0.285	16.18	0
OSW-7 P3	8/7/2017	0.43	7.95	-63	0.285	16.05	0
OSW-7 P4	8/7/2017	0	7.9	-77	0.336	15.82	0
OSW-7 P5	8/7/2017	0	7.79	-112	0.431	15.76	0
OSW-7 P6	8/7/2017	0	7.56	-106	1.03	15.85	0.1
OSW-7 P7	8/7/2017	0	7.46	-73	1.98	15.56	0
OSW-8 P1	8/7/2017	2.86	8.04	46	0.204	15.01	1.1
OSW-8 P2	8/7/2017	0	7.87	12	0.270	13.04	0.4
OSW-8 P3	8/7/2017	0	7.91	-20	0.285	13.50	0.8
OSW-8 P4	8/7/2017	0	7.98	-52	0.264	13.66	0
OSW-8 P5	8/7/2017	0	7.52	-29	0.463	13.21	0.5
OSW-8 P6	8/7/2017	4.21	7.89	-64	0.298	13.20	1.5
OSW-8 P7	8/7/2017	0	7.92	-85	0.337	13.11	1.4

Table 2
Summary of Analytical Results, OSW-7 and OSW-8
August 7, 2017

Client ID	NJ Higher of	OSW-7-P1-20170807		OSW-7-P2-20170807		OSW-7-P3-20170807		OSW-7-P4-20170807		OSW-7-P5-20170807		OSW-7-P6-20170807		OSW-7-P7-20170807			
Lab Sample ID	PQLs and GW		460-138852-1		460-138852-2		460-138852-3		460-138852-4		460-138852-5		460-138852-6		460-138852-7		
Sampling Date	Quality	08/07/2017 13:25:00		08/07/2017 13:35:00		08/07/2017 13:45:00		08/07/2017 13:55:00		08/07/2017 14:05:00		08/07/2017 14:10:00		08/07/2017 14:15:00			
Matrix	Criterion		Water														
Dilution Factor	2015	1		1		1		1		1		1		1			
Unit	ug/l		ug/l														
VOA-8260B-WATER		Result	Q	MDL	Result	Q	MDL	Result	Q	MDL	Result	Q	MDL	Result	Q	MDL	
WATER BY 8260B																	
1,1,1-Trichloroethane	30	0.28	U	0.28	0.28	U	0.28	0.28	U	0.28	0.28	U	0.28	0.28	U	0.28	
1,1,2,2-Tetrachloroethane	1	0.19	U	0.19	0.19	U	0.19	0.19	U	0.19	0.19	U	0.19	0.19	U	0.19	
1,1,2-Trichloroethane	3	0.080	U	0.080	0.080	U	0.080	0.080	U	0.080	0.080	U	0.080	0.080	U	0.080	
1,1-Dichloroethane	50	0.24	U	0.24	0.24	U	0.24	0.24	U	0.24	0.24	U	0.24	0.24	U	0.24	
1,1-Dichloroethene	1	0.34	U	0.34	0.34	U	0.34	0.34	U	0.34	0.34	U	0.34	0.34	U	0.34	
1,2,3-Trichlorobenzene	NA	0.35	U	0.35	0.35	U	0.35	0.35	U	0.35	0.35	U	0.35	0.35	U	0.35	
1,2,4-Trichlorobenzene	9	0.27	U	0.27	0.27	U	0.27	0.27	U	0.27	0.27	U	0.27	0.27	U	0.27	
1,2-Dichlorobenzene	600	0.22	U	0.22	0.22	U	0.22	0.22	U	0.22	0.22	U	0.22	0.22	U	0.22	
1,2-Dichloroethane	2	0.25	U	0.25	0.25	U	0.25	0.25	U	0.25	0.25	U	0.25	0.25	U	0.25	
1,2-Dichloropropane	1	0.18	U	0.18	0.18	U	0.18	0.18	U	0.18	0.18	U	0.18	0.18	U	0.18	
1,3-Dichlorobenzene	600	0.33	U	0.33	0.33	U	0.33	0.33	U	0.33	0.33	U	0.33	0.33	U	0.33	
1,4-Dichlorobenzene	75	0.33	U	0.33	0.33	U	0.33	0.33	U	0.33	0.33	U	0.33	0.33	U	0.33	
2-Butanone	300	2.2	U	2.2	2.2	U	2.2	6.4	U	2.2	5.7	U	2.2	8.1	U	2.2	
2-Hexanone	300	0.72	U	0.72	0.72	U	0.72	0.72	U	0.72	0.72	U	0.72	0.72	U	0.72	
4-Methyl-2-pentanone	NA	0.63	U	0.63	0.63	U	0.63	0.63	U	0.63	0.63	U	0.63	0.63	U	0.63	
Acetone	6000	20		1.1	8.8		1.1	3.8	J	1.1	4.8	J	1.1	4.0	J	1.1	
Benzene	1	0.090	U	0.090	0.090	U	0.090	0.12	J	0.090	0.15	J	0.090	0.12	J	0.090	
Bromochloromethane	NA	0.30	U	0.30	0.30	U	0.30	0.30	U	0.30	0.30	U	0.30	0.30	U	0.30	
Bromodichloromethane	1	0.15	U	0.15	0.15	U	0.15	0.15	U	0.15	0.15	U	0.15	0.15	U	0.15	
Bromoform	4	0.18	U	0.18	0.18	U	0.18	0.18	U	0.18	0.18	U	0.18	0.18	U	0.18	
Bromomethane	10	0.18	U	0.18	0.18	U	0.18	0.18	U	0.18	0.18	U	0.18	0.18	U	0.18	
Carbon disulfide	700	0.22	U	0.22	0.22	U	0.22	0.27	J	0.22	0.22	U	0.22	0.25	J	0.22	
Carbon tetrachloride	1	0.33	U	0.33	0.33	U	0.33	0.33	U	0.33	0.33	U	0.33	0.33	U	0.33	
Chlorobenzene	50	0.24	U	0.24	0.24	U	0.24	0.24	U	0.24	0.24	U	0.24	0.24	U	0.24	
Chloroethane	5	0.37	U	0.37	0.37	U	0.37	0.37	U	0.37	0.37	U	0.37	0.37	U	0.37	
Chloroform	70	1.0		0.22	0.60	J	0.22	0.55	J	0.22	0.68	J	0.22	0.46	J	0.22	
Chloromethane	NA	0.22	U	0.22	0.22	U	0.22	0.22	U	0.22	0.22	U	0.22	0.22	U	0.22	
cis-1,2-Dichloroethene	70	0.26	U	0.26	0.26	U	0.26	0.26	U	0.26	0.26	U	0.26	0.26	U	0.26	
cis-1,3-Dichloropropene	NA	0.16	U	0.16	0.16	U	0.16	0.16	U	0.16	0.16	U	0.16	0.16	U	0.16	
Cyclohexane	NA	0.26	U	0.26	0.26	U	0.26	0.26	U	0.26	0.26	U	0.26	0.26	U	0.26	
Dibromochloromethane	1	0.22	U	0.22	0.22	U	0.22	0.22	U	0.22	0.22	U	0.22	0.22	U	0.22	
Dichlorodifluoromethane	1000	0.14	U	0.14	0.14	U	0.14	0.14	U	0.14	0.14	U	0.14	0.14	U	0.14	
Ethylbenzene	700	0.30	U	0.30	0.30	U	0.30	0.30	U	0.30	0.30	U	0.30	0.30	U	0.30	
Freon TF	20000	0.34	U	0.34	0.34	U	0.34	0.34	U	0.34	0.34	U	0.34	0.34	U	0.34	
Isopropylbenzene	700	0.32	U	0.32	0.32	U	0.32	0.32	U	0.32	0.32	U	0.32	0.32	U	0.32	
Methyl acetate	7000	0.58	U	0.58	0.58	U	0.58	0.58	U	0.58	0.58	U	0.58	0.58	U	0.58	
Methylcyclohexane	NA	0.22	U	0.22	0.22	U	0.22	0.22	U	0.22	0.22	U	0.22	0.22	U	0.22	
Methylene Chloride	3	0.21	U	0.21	0.21	U	0.21	0.25	J	0.21	0.21	U	0.21	0.21	U	0.21	
MTBE	70	0.13	U	0.13	0.13	U	0.13	0.13	U	0.13	0.13	U	0.13	0.13	U	0.13	
Styrene	100	0.17	U	0.17	0.17	U	0.17	0.17	U	0.17	0.17	U	0.17	0.17	U	0.17	
Tetrachloroethene	1	0.12	U	0.12	0.12	U	0.12	0.12	U	0.12	0.12	U	0.12	0.12	U	0.12	
Toluene	600	0.32	J	0.25	4.0		0.25	24		0.25	14		0.25	10		0.25	
trans-1,2-Dichloroethene	100	0.18	U	0.18	0.18	U	0.18	0.18	U	0.18	0.18	U	0.18	0.18	U	0.18	
trans-1,3-Dichloropropene	NA	0.19	U	0.19	0.19	U	0.19	0.19	U	0.19	0.19	U	0.19	0.19	U	0.19	
Trichloroethene	1	0.22	U	0.22	0.28	J	0.22	0.22	U	0.22	0.22	U	0.22	0.22	U	0.22	
Trichlorofluoromethane	2000	0.15	U	0.15	0.15	U	0.15	0.15	U	0.15	0.15	U	0.15	0.15	U	0.15	
Vinyl chloride	1	0.060	U	0.060	0.060	U	0.060	0.060	U	0.060	0.060	U	0.060	0.060	U	0.060	
Xylenes, Total	1000	0.28	U	0.28	0.28	U	0.28	0.28	U	0.28	0.28	U	0.28	0.28	U	0.28	
Total Conc	NA	21.32			13.68			35.39			25.33			19.79		17.29	
VOA-8260B SIM-WATER		Result	Q	MDL	Result	Q	MDL	Result	Q	MDL	Result	Q	MDL	Result	Q	MDL	
WATER BY 8260B SIM																	
1,2-Dibromo-3-Chloropropan	0.02	0.0040	U	0.0040	0.0040	U	0.0040	0.0040	U	0.0040	0.0040	U	0.0040	0.0040	U	0.0040	
1,4-Dioxane	0.4	18		0.20	39		0.20	4.7		0.20	4.5		0.20	3.6		0.20	
Ethylene Dibromide	0.03	0.0010	U	0.0010	0.0010	U	0.0010	0.0010	U	0.0010	0.0010	U	0.0010	0.0010	U	0.0010	
Total Conc	NA	18.0			39.0			4.7			4.5			3.6		4.5	

Highlighted Concentrations shown in bold type face exceed limits

J : Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

U : Indicates the analyte was analyzed for but not detected.

* : LCS or LCSD is outside acceptance limits.

Table 2
Summary of Analytical Results, OSW-7 and OSW-8
August 7, 2017

Client ID	NJ Higher of	OSW-8-P1-20170807		OSW-8-P2-20170807		OSW-8-P3-20170807		OSW-8-P4-20170807		OSW-8-P5-20170807		OSW-8-P6-20170807		OSW-8-P7-20170807			
Lab Sample ID	PQLs and GW	460-138852-9		460-138852-10		460-138852-11		460-138852-12		460-138852-13		460-138852-14		460-138852-15			
Sampling Date	Quality	08/07/2017 14:25:00		08/07/2017 14:30:00		08/07/2017 14:40:00		08/07/2017 14:45:00		08/07/2017 14:55:00		08/07/2017 15:05:00		08/07/2017 15:15:00			
Matrix	Criterion	Water	Water	Water	Water	Water	Water	Water	Water	Water	Water	Water	Water	Water	Water		
Dilution Factor	2015	1	1	1	1	1	1	1	1	1	1	1	1	1	1		
Unit	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l		
VOA-8260B-WATER		Result	Q	MDL	Result	Q	MDL	Result	Q	MDL	Result	Q	MDL	Result	Q	MDL	
WATER BY 8260B																	
1,1,1-Trichloroethane	30	0.28	U	0.28	0.28	U	0.28	0.28	U	0.28	0.28	U	0.28	0.28	U	0.28	
1,1,2,2-Tetrachloroethane	1	0.19	U	0.19	0.19	U	0.19	0.19	U	0.19	0.19	U	0.19	0.19	U	0.19	
1,1,2-Trichloroethane	3	0.080	U	0.080	0.080	U	0.080	0.080	U	0.080	0.080	U	0.080	0.080	U	0.080	
1,1-Dichloroethane	50	0.24	U	0.24	0.24	U	0.24	0.24	U	0.24	0.24	U	0.24	0.24	U	0.24	
1,1-Dichloroethene	1	0.34	U	0.34	0.34	U	0.34	0.34	U	0.34	0.34	U	0.34	0.34	U	0.34	
1,2,3-Trichlorobenzene	NA	0.35	U	0.35	0.35	U	0.35	0.35	U	0.35	0.35	U	0.35	0.35	U	0.35	
1,2,4-Trichlorobenzene	9	0.27	U	0.27	0.27	U	0.27	0.27	U	0.27	0.27	U	0.27	0.27	U	0.27	
1,2-Dichlorobenzene	600	0.22	U	0.22	0.22	U	0.22	0.22	U	0.22	0.22	U	0.22	0.22	U	0.22	
1,2-Dichloroethane	2	0.25	U	0.25	0.25	U	0.25	0.25	J	0.25	0.25	U	0.25	0.25	U	0.25	
1,2-Dichloropropane	1	0.18	U	0.18	0.18	U	0.18	0.18	U	0.18	0.18	U	0.18	0.18	U	0.18	
1,3-Dichlorobenzene	600	0.33	U	0.33	0.33	U	0.33	0.33	U	0.33	0.33	U	0.33	0.33	U	0.33	
1,4-Dichlorobenzene	75	0.33	U	0.33	0.33	U	0.33	0.33	U	0.33	0.33	U	0.33	0.33	U	0.33	
2-Butanone	300	2.2	U	2.2	2.2	U	2.2	4.8	J	2.2	8.9	2.2	3.3	J	2.2	5.0	
2-Hexanone	300	0.72	U	0.72	0.72	U	0.72	0.72	U	0.72	0.72	U	0.72	0.72	U	0.72	
4-Methyl-2-pentanone	NA	0.63	U	0.63	0.63	U	0.63	0.63	U	0.63	0.63	U	0.63	0.63	U	0.63	
Acetone	6000	6.1	U	1.1	1.1	U	1.1	5.2	U	1.1	3.8	J	1.1	5.2	U	1.1	
Benzene	1	0.090	U	0.090	0.090	U	0.090	0.090	U	0.090	0.090	J	0.090	0.090	U	0.090	
Bromochloromethane	NA	0.30	U	0.30	0.30	U	0.30	0.30	U	0.30	0.30	U	0.30	0.30	U	0.30	
Bromodichloromethane	1	0.15	U	0.15	0.15	U	0.15	0.15	U	0.15	0.15	U	0.15	0.15	U	0.15	
Bromoform	4	0.18	U	0.18	0.18	U	0.18	0.18	U	0.18	0.18	U	0.18	0.18	U	0.18	
Bromomethane	10	0.18	U	0.18	0.18	U	0.18	0.18	U	0.18	0.18	U	0.18	0.18	U	0.18	
Carbon disulfide	700	0.22	U	0.22	0.22	U	0.22	0.22	U	0.22	0.22	U	0.22	0.22	U	0.22	
Carbon tetrachloride	1	0.33	U	0.33	0.72	J	0.33	5.3	U	0.33	1.2	U	0.33	0.33	U	0.33	
Chlorobenzene	50	0.24	U	0.24	0.24	U	0.24	0.24	U	0.24	0.24	U	0.24	0.24	U	0.24	
Chloroethane	5	0.37	U	0.37	0.37	U	0.37	0.37	U	0.37	0.37	U	0.37	0.37	U	0.37	
Chloroform	70	0.31	J	0.22	2.0	U	0.22	10	U	0.22	4.4	U	0.22	0.95	J	2.0	
Chloromethane	NA	0.22	U	0.22	0.22	U	0.22	0.22	U	0.22	0.22	U	0.22	0.22	U	0.22	
cis-1,2-Dichloroethene	70	0.26	U	0.26	0.26	U	0.26	0.80	J	0.26	1.1	U	0.26	2.0	U	0.26	
cis-1,3-Dichloropropene	NA	0.16	U	0.16	0.16	U	0.16	0.16	U	0.16	0.16	U	0.16	0.16	U	0.16	
Cyclohexane	NA	0.26	U	0.26	0.26	U	0.26	0.26	U	0.26	0.26	U	0.26	0.26	U	0.26	
Dibromochloromethane	1	0.22	U	0.22	0.22	U	0.22	0.22	U	0.22	0.22	U	0.22	0.22	U	0.22	
Dichlorodifluoromethane	1000	0.14	U	0.14	0.14	U	0.14	0.14	U	0.14	0.14	U	0.14	0.14	U	0.14	
Ethylbenzene	700	0.30	U	0.30	0.30	U	0.30	0.30	U	0.30	0.30	U	0.30	0.30	U	0.30	
Freon TF	20000	0.34	U	0.34	0.34	U	0.34	0.34	U	0.34	0.34	U	0.34	0.34	U	0.34	
Isopropylbenzene	700	0.32	U	0.32	0.32	U	0.32	0.32	U	0.32	0.32	U	0.32	0.32	U	0.32	
Methyl acetate	7000	0.58	U	0.58	0.58	U	0.58	0.58	U	0.58	0.58	U	0.58	0.58	U	0.58	
Methylcyclohexane	NA	0.22	U	0.22	0.22	U	0.22	0.22	U	0.22	0.22	U	0.22	0.22	U	0.22	
Methylene Chloride	3	0.24	J	0.21	0.21	U	0.21	0.32	J	0.21	0.33	J	0.21	0.21	J	0.21	
MTBE	70	0.13	U	0.13	0.13	U	0.13	0.13	U	0.13	0.13	U	0.13	0.13	U	0.13	
Styrene	100	0.17	U	0.17	0.17	U	0.17	0.17	U	0.17	0.17	U	0.17	0.17	U	0.17	
Tetrachloroethene	1	0.12	U	0.12	0.12	U	0.12	0.12	U	0.12	0.12	U	0.12	0.12	U	0.12	
Toluene	600	0.32	J	0.25	0.62	J	0.25	5.2	U	0.25	20	U	0.25	13	U	0.25	
trans-1,2-Dichloroethene	100	0.18	U	0.18	0.18	U	0.18	0.18	U	0.18	0.18	U	0.18	0.18	U	0.18	
trans-1,3-Dichloropropene	NA	0.19	U	0.19	0.19	U	0.19	0.19	U	0.19	0.19	U	0.19	0.19	U	0.19	
Trichloroethene	1	0.22	U	0.22	1.0	U	0.22	12	U	0.22	2.9	U	0.22	3.2	U	0.22	
Trichlorofluoromethane	2000	0.15	U	0.15	0.15	U	0.15	0.15	U	0.15	0.15	U	0.15	0.15	U	0.15	
Vinyl chloride	1	0.060	U	0.060	0.060	U	0.060	0.060	U	0.060	0.060	U	0.060	0.060	U	0.060	
Xylenes, Total	1000	0.28	U	0.28	0.28	U	0.28	0.28	U	0.28	0.28	U	0.28	0.28	U	0.28	
Total Conc	NA	6.97		4.34			43.94			43.2			28.32		19.62		21.75

VOA-8260B SIM-WATER		Result	Q	MDL	Result	Q	MDL	Result	Q	MDL	Result	Q	MDL	Result	Q	MDL
WATER BY 8260B SIM																
1,2-Dibromo-3-Chloropropane	0.02	0.0040	U	0.0040	0.0040	U	0.0040	0.0040	U	0.0040	0.0040	U	0.0040	0.0040	U	0.0040
1,4-Dioxane	0.4	4.2	0.20	16	0.20	12	1.6	0.20	4.0	0.20	1.1	0.20	8.6	0.20		
Ethylene Dibromide	0.03	0.0010	U	0.0010	0.0010	U	0.0010	0.0010	U	0.0010	0.0010	U	0.0010	0.0010	U	0.0010
Total Conc	NA	4.2		16.0			12.0			1.6			4.0			8.6

Highlighted Concentrations shown in bold type face exceed limits

J : Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

U : Indicates the analyte was analyzed for but not detected.

* : LCS or LCSD is outside acceptance limits.